

WHAT IS CLAIMED IS:

1. An image forming apparatus comprising:

exposing means including an organic electroluminescence element having an anode for injecting a hole, a luminescent layer having a luminescent region and a cathode for injecting 5 an electron on a board; and

cooling means for cooling the organic electroluminescence element.

10 2. The image forming apparatus according to Claim 1, wherein the cooling means comprises at least one of a Peltiert element, a fan and a fin.

3. An image forming apparatus comprising:

15 exposing means including an organic electroluminescence element having an anode for injecting a hole, a luminescent layer having a luminescent region and a cathode for injecting an electron on a board; and

cooling means constituted by a fan for cooling the organic 20 electroluminescence element;

wherein the fan is attached at a position capable of blowing a wind in a direction substantially orthogonal to a longitudinal direction of the exposing means.

4. An image forming apparatus comprising:  
exposing means including an organic electroluminescence  
element having an anode for injecting a hole, a luminescent  
layer having a luminescent region and a cathode for injecting  
5 an electron on a board; and

cooling means comprising a Peltiert element for cooling  
the organic electroluminescence element;

wherein the cooling means cools any of faces excluding  
at least a luminescent face of the organic electroluminescence  
10 element.

5. An image forming apparatus comprising:  
exposing means including an organic electroluminescence  
element having an anode for injecting a hole, a luminescent  
15 layer having a luminescent region and a cathode for injecting  
an electron on a board; and

a cooling medium pipe for transporting a cooling medium  
for cooling the organic electroluminescence element along a  
vicinity of the organic electroluminescence element.

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6. The image forming apparatus according to Claim 1,  
further comprising:

a temperature sensor for detecting a temperature of the  
exposing means; and

controlling means for operating the cooling means when  
the temperature of the exposing means detected by the  
temperature sensor becomes out of a predetermined temperature.

- 5        7. An image forming apparatus comprising:  
            exposing means including an organic electroluminescence  
            element having an anode for injecting a hole, a luminescent  
            layer having a luminescent region and a cathode for injecting  
            an electron on a board; and  
10        cooling means for cooling the organic  
            electroluminescence element;  
            a temperature sensor for detecting a temperature of the  
            exposure head; and  
            controlling means for operating the cooling means when  
15        a temperature of the exposure head detected by the temperature  
            sensor becomes out of a predetermined temperature;  
            wherein the controlling means controls the cooling means  
            to cool the exposing means to an environmental temperature in  
            a steady state equal to or lower than a crystallizing  
20        temperature of an organic substance provided by the organic  
            electroluminescence element.

8. An image forming apparatus comprising:  
            exposing means including an organic electroluminescence

element having an anode for injecting a hole, a luminescent layer having a luminescent region and a cathode for injecting an electron on a board; and

cooling means including at least one of a Peltier element,

5 a fan and a fin for cooling the organic electroluminescence element;

a temperature sensor for detecting a temperature of the exposing means; and

controlling means for operating the cooling means when  
10 the temperature of the exposing means detected by the temperature sensor becomes out of a predetermined temperature.

9. The image forming apparatus according to Claim 8,  
wherein the controlling means controls the cooling means to cool  
15 the exposing means to an environmental temperature in a steady state equal to or lower than a crystallizing temperature of an organic substance provided by the organic electroluminescence element.

20 10. An image forming apparatus comprising:

exposing means including an organic electroluminescence element having an anode for injecting a hole, a luminescent layer having a luminescent region and a cathode for injecting an electron on a board; and

cooling means for cooling the organic  
electroluminescence element;  
a temperature sensor for detecting a temperature of the  
exposure head; and

5       controlling means for operating the cooling means when  
the temperature of the exposing means detected by the  
temperature sensor becomes out of a predetermined temperature;  
wherein the controlling means sets a width of varying the  
temperature of the exposing means to an environmental  
10      temperature  $\pm 20^{\circ}\text{C}$  in a steady state.

11. An image forming apparatus comprising:  
exposing means including an organic electroluminescence  
element having an anode for injecting a hole, a luminescent  
15      layer having a luminescent region and a cathode for injecting  
an electron on a board; and  
cooling means for cooling the organic  
electroluminescence element;  
a light amount sensor for detecting a light amount of light  
20      irradiated from the organic electroluminescence element; and  
controlling means for operating the cooling means when  
the light amount of the light detected by the light amount sensor  
becomes equal to or smaller than a predetermined amount.

12. An image forming apparatus comprising:  
exposing means including an organic electroluminescence  
element having an anode for injecting a hole, a luminescent  
layer having a luminescent region and a cathode for injecting  
5 an electron on a board; and  
cooling means for cooling the organic  
electroluminescence element;  
a darkness sensor for detecting a darkness of the toner  
image; and  
10 controlling means for operating the cooling means when  
the darkness of the toner image detected by the darkness sensor  
becomes equal to or smaller than a predetermined darkness.

13. An image forming apparatus comprising:  
15 exposing means including an organic electroluminescence  
element having an anode for injecting a hole, a luminescent  
layer having a luminescent region and a cathode for injecting  
an electron on a board; and  
cooling means for cooling the organic  
20 electroluminescence element;  
a temperature sensor for detecting a temperature of the  
exposing means;  
a light amount sensor for detecting a light amount of light  
irradiated from the organic electroluminescence element;

a darkness sensor for detecting a darkness of the toner image; and

controlling means for operating the cooling means based on an output of the temperature sensor or the light amount sensor  
5 or the darkness sensor;

wherein the controlling means controls a current supplied to the organic electroluminescence element such that a luminescent light amount of the organic electroluminescence element become constant based on information from the  
10 temperature sensor, the light amount sensor or the darkness sensor.

14. An image forming apparatus comprising:  
exposing means including an organic electroluminescence  
15 element having an anode for injecting a hole, a luminescent layer having a luminescent region and a cathode for injecting an electron on a board; and  
cooling means for cooling the organic electroluminescence element; and  
20 controlling means for controlling the cooling means for uniformly controlling a temperature of inside of a head such that a difference in a light amount of each pixel at the inside of the head of the exposing means becomes equal to or smaller than  $\pm 14\%$ .

15. An image forming apparatus comprising:  
exposing means including an organic electroluminescence  
member having a plurality of pieces of luminescent units between  
5 a pair of an anode and a cathode opposed to each other;  
wherein the luminescent unit constituting the organic  
electroluminescence element is constituted by combining a unit  
in which a light amount of each luminescent unit is increased  
relative to a temperature and a unit in which the light amount  
10 of the luminescent unit is reduced relative to the temperature.

16. The image forming apparatus according to Claim 15,  
further comprising cooling means for cooling the organic  
electroluminescence element constituting the exposing means.

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17. The image forming apparatus according to Claim 15,  
further comprising:  
cooling means for cooling the organic  
electroluminescence element;  
20 a temperature sensor for detecting a temperature of the  
exposure head; and  
controlling means for operating the cooling means when  
the temperature of the exposing means detected by the  
temperature sensor becomes out of a predetermined temperature.

18. An image forming apparatus comprising:  
exposing means including an organic electroluminescence  
element having an anode for injecting a hole, a luminescent  
5 layer having a luminescent region and a cathode for injecting  
an electron on a board; and

cooling means arranged with a heat radiating sheet for  
cooling the organic electroluminescence element constituting  
the exposing means.

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19. The image forming apparatus according to Claim 18,  
wherein the cooling means cools any of faces excluding at least  
a luminescent face of the organic electroluminescence element  
constituting the exposing means.

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20. An image forming apparatus comprising:  
exposing means including an electroluminescence element  
including at least an anode for injection a hole, a luminescent  
layer having a luminescent region and a cathode for injecting  
20 an electron on a board;

wherein the organic electroluminescence element is  
cooled by using cooling means constituting a medium by a liquid.